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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,948	12/24/2003	Rod Walsh	4208-4172	9580

27123 7590 10/05/2007
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EXAMINER	
LOO, JUVENA W	

ART UNIT	PAPER NUMBER
2609	

NOTIFICATION DATE	DELIVERY MODE
10/05/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/743,948	WALSH ET AL.	
	Examiner	Art Unit	
	Juvena W. Loo	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-64* is/are rejected.

7)☒ Claim(s) *10,11,30,31,49,50 and 62* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/24/2003 and 05/26/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to application filed on December 24, 2003 in which claims 1 to 64 are presented for examination.

Status of Claims

Claims 1 - 64 are pending, of which claims 1, 21, 40 , and 58 are in independent form.

Claims 10 - 11, 30 - 31, 49 - 50, and 62 are objected to because of informalities.

Claims 21 - 39 are rejected under 35 USC 101.

Claims 1 – 8, 11 – 17, 20 – 28, 31 – 37, 40 – 47, 50 – 55, 58 – 61, and 63 are rejected under 35 USC 102(b).

Claims 9 – 10, 18 – 19, 29 – 30, 38 – 39, 48 – 49, 56 – 57, 62, and 64 are rejected under 35 USC 103(a).

Claim Objections

1. Claims 10, 30, 49, and 62 are objected to because of the following informalities: In particular, claims 1, 30, 49, and 62 are objected to because they include reference characters, ACL, which are not enclosed within parentheses. Appropriate correction is required.

2. Claims 11, 31, 50, and 58 are objected to because of the following informalities: In particular, claims 11, 31, 50, and 58 are objected to because they include reference characters, NACK, which are not enclosed within parentheses. Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 21 – 39 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 21 – 39 are directed to a computer program product wherein the claim describes said product as being merely a software code. Since the specification has no definition, examiner can only assume applicant intended "computer readable medium" to include intangible media such as signals, carrier waves, transmissions, optical waves, transmission media or other media incapable of being touched or perceived absent the tangible medium through which they are conveyed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 8, 11 – 17, 20 – 28, 31 – 37, 40 – 47, 50 – 55, 58 - 61, and 63 are rejected under 35 U.S.C. 102(b) as being anticipated by Hur et al. (Patent Number: 6,141,785).

Regarding claim 1, Hur discloses a method for reliable multicast transport of data packets, comprising: transmitting a data packet from at least one sending device to at least one receiving device (Hur: column 4, lines 17 – 21: a communication group is composed of a small number of sources, and a large number of receivers, and a connection for communication between them is established to transmit and receive data); determining at said receiving device missing or mangled data transmitted from said sending device (Hur: column 4, lines 39 - 42: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum); sending an acknowledgement or transmission of missing or mangled data from said receiving device to said sending device or to another receiving device (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request); receiving a retransmission of said missing or mangled data from said sending device or said other receiving device to complete the data packet and a data transmission session (Hur: column 6, lines 60 – 61: if the source cannot retransmit, other host retransmits the data).

Regarding claim 2, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement message (Hur: column 6, lines 54 – 57: the negative acknowledgement (NACK) is transmitted through IP_Multicast group, and other host notices the request).

Regarding claim 3, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said retransmission of missing or mangled data is a multicast or unicast message (Hur: Figure 3 and column 10, lines 49 – 54: the host sends the correction data to the multicast group).

Regarding claim 4, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said missing or mangled data is retransmitted from said sending device or said other receiving device that possesses the missing or mangled data from the data transmission (Hur: column 6, lines 60 – 61: if the source cannot retransmit, other host retransmits the data).

Regarding claim 5, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the prioritizing the retransmitting of said missing or mangled data based on said acknowledgement, number of data transmissions missed, location of missed or mangled data or the like (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence

numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 6, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the retransmitting said missing or mangled data by retransmitting the original data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 7, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the retransmitting said missing or mangled data by retransmitting only the missing data of the original data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 8, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the repositioning said missing or mangled data in the data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the

damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 11, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the transmitting said acknowledgement or missing or mangled data from said receiving device using a NACK and retransmission mechanism (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request).

Regarding claim 12, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said missing or mangled data is from a previous transmission, an earlier transmission or a predicted transmission (Hur: column 7, lines 20 – 23: the receiver requests the retransmission of the missing or damaged data, and one of the source and peer-hosts retransmits them).

Regarding claim 13, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the defining unidirectional transmission block identifiers and corresponding objects before transmitting data to a receiving device (Hur: column 4, lines 35 – 47: the sources recognize data transmitted and received by using sequence number of messages. The sequence number starts with a number, is sequentially increased for identification of each data packet and is independently maintained by each source).

Regarding claim 14, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said data is transmitted from the sending device using unidirectional protocol (Hur: column 4, lines 43 – 65: data are transmitted from the source to receivers. The heartbeat message is used for indication of presence and status of a source).

Regarding claim 15, Hur discloses all the limitations of claim 13. Additionally, Hur discloses that said acknowledgement is transmitted by a receiving device using a bi-directional or uplink simplex protocol using the same transmission block identifier as the unidirectional protocol (Hur: column 5, lines 11 – 23: the receiver periodically transmits the heartbeat message to the source to inform the source of the last received message. The heartbeat information sent by the receiver can be received only by the source and contain the receiver ID, a port number of connection, and the sequence number of the last message the receiver received).

Regarding claim 16, Hur discloses all the limitations of claim 1. Additionally, Hur discloses the sending an acknowledgment from said receiving or sending device that the missing or mangled data has been correctly received (Hur: column 5, lines 11 – 23: the receiver periodically transmits the heartbeat message to the source to inform the source of the last received message. The heartbeat information sent by the receiver

can be received only by the source and contain the receiver ID, a port number of connection, and the sequence number of the last message the receiver received).

Regarding claim 17, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said acknowledgement contains a plurality of negative acknowledgements regarding missing or mangled data in the data transmission (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request).

Regarding claim 20, Hur discloses all the limitations of claim 1. Additionally, Hur discloses that said sending device and said receiving device are in the same network or in different networks (Hur: column 4, lines 17 – 21: a communication group is composed of a small number of sources, and a large number of receivers, and a connection for communication between them is established to transmit and receive data).

Regarding claim 21, Hur discloses a computer readable medium for storing computer program code (Hur: column 12, lines 63 – 67); program code for transmitting a data packet from at least one sending device to at least one receiving device (Hur: column 4, lines 17 – 21: a communication group is composed of a small number of sources, and a large number of receivers, and a connection for communication between them is established to transmit and receive data); program code for determining missing

or mangled data transmitted from said sending device (Hur: column 4, lines 39 - 42: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum); program code for sending an acknowledgement or transmission of missing or mangled data to said sending device or to another receiving device (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request); program code for receiving a retransmission of said missing or mangled data from said sending device or said other receiving device to complete transmission of data packet and a data transmission session (Hur: column 6, lines 60 – 61: if the source cannot retransmit, other host retransmits the data).

Regarding claim 22, Hur discloses all the limitations of claim 21. Additionally, Hur discloses that said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement message (Hur: column 6, lines 54 – 57: the negative acknowledgement (NACK) is transmitted through IP_Multicast group, and other host notices the request).

Regarding claim 23, Hur discloses all the limitations of claim 21. Additionally, Hur discloses that said retransmission of missing or mangled data is a multicast or unicast message (Hur: Figure 3 and column 10, lines 49 – 54: the host sends the correction data to the multicast group).

Regarding claim 24, Hur discloses all the limitations of claim 21. Additionally, Hur discloses that said missing or mangled data is retransmitted from said sending device or said other receiving device that possesses the missing or mangled blocks (Hur: column 6, lines 60 – 61: if the source cannot retransmit, other host retransmits the data).

Regarding claim 25, Hur discloses all the limitations of claim 21. Additionally, Hur discloses that the prioritizing the retransmitting of said missing or mangled data based on said acknowledgement received, number of data transmissions missed, location of the missed or mangled data or the like (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 26, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the retransmitting said missing or mangled data by retransmitting the entire original data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 27, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the retransmitting said missing or mangled data by retransmitting only the missing data of the original data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 28, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the repositioning said missing or mangled data in the data retransmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 31, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the transmitting said acknowledgement or missing or mangled data from said receiver using a NACK and retransmission mechanism (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request).

Regarding claim 32, Hur discloses all the limitations of claim 21. Additionally, Hur discloses that said missing or mangled data is from a previous transmission, an earlier transmission or a predicted transmission (Hur: column 7, lines 20 – 23: the receiver requests the retransmission of the missing or damaged data, and one of the source and peer-hosts retransmits them).

Regarding claim 33, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the defining unidirectional transmission block identifiers and corresponding objects before transmitting data to the receiving device (Hur: column 4, lines 35 – 47: the sources recognize data transmitted and received by using sequence number of messages. The sequence number starts with a number, is sequentially increased for identification of each data packet and is independently maintained by each source).

Regarding claim 34, Hur discloses all the limitations of claim 21. Additionally, Hur discloses that said data is transmitted from the sending device using a unidirectional protocol (Hur: column 4, lines 43 – 65: data are transmitted from the source to receivers. The heartbeat message is used for indication of presence and status of a source).

Regarding claim 35, Hur discloses all the limitations of claim 32. Additionally, Hur discloses that said acknowledgement is transmitted from said receiving device using a bi-directional or uplink simplex protocol using the same transmission block identifier as the unidirectional protocol (Hur: column 5, lines 11 – 23: the receiver periodically transmits the heartbeat message to the source to inform the source of the last received message. The heartbeat information sent by the receiver can be received only by the source and contain the receiver ID, a port number of connection, and the sequence number of the last message the receiver received).

Regarding claim 36, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the sending a positive acknowledgement from said receiving or sending device that the missing or mangled data has been received correctly (Hur: column 5, lines 11 – 23: the receiver periodically transmits the heartbeat message to the source to inform the source of the last received message. The heartbeat information sent by the receiver can be received only by the source and contain the receiver ID, a port number of connection, and the sequence number of the last message the receiver received).

Regarding claim 37, Hur discloses all the limitations of claim 21. Additionally, Hur discloses the sending a plurality of negative acknowledgements in the same negative acknowledgement message (Hur: column 6, lines 54 – 57: if the receiver finds

out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request).

Regarding claim 40, Hur discloses a system comprising at least one sending device for transmitting data to at least one receiving device (Hur: column 4, lines 17 – 21: a communication group is composed of a small number of sources, and a large number of receivers, and a connection for communication between them is established to transmit and receive data); at least one receiving device for determining missing or mangled data transmitted from said sending device (Hur: column 4, lines 39 - 42: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum) and sending an acknowledgement or transmission of missing or mangled data to said sending device or to another receiving regarding retransmission of at least missing or mangled data (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request); at least one network for establishing communication between said sending device and said receiving device as well as communication between receiving devices in the network (Hur: column 4, lines 17 – 21: a communication group is composed of a small number of sources, and a large number of receivers, and a connection for communication between them is established to transmit and receive data).

Regarding claim 41, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement message (Hur: column 6, lines 54 – 57: the negative acknowledgement (NACK) is transmitted through IP_Multicast group, and other host notices the request).

Regarding claim 42, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said retransmission of missing or mangled data is a multicast or unicast message (Hur: Figure 3 and column 10, lines 49 – 54: the host sends the correction data to the multicast group).

Regarding claim 43, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said missing or mangled data are retransmitted from said sending device or another receiving device that possesses the missing or mangled data (Hur: column 6, lines 60 – 61: if the source cannot retransmit, other host retransmits the data).

Regarding claim 44, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that the retransmission of said missing or mangled data prioritized based on the acknowledgement of missing or mangled data received, number of data transmissions missed, location of missed or mangled data or the like (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of

packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 45, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that the missing or mangled data are retransmitting along with the entire original data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 46, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that retransmitting said missing or mangled data involves retransmitting only the missing data of the original data transmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6, lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 47, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said retransmitting involves repositioning said missing or mangled data in the data retransmission (Hur: Figure 3; column 4, lines 49 – 42 and column 6,

lines 56 – 57: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum of data packet. The receiver can request the retransmission of necessary data).

Regarding claim 50, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that transmitting said acknowledgement from said receiving device using a NACK and retransmission mechanism (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request).

Regarding claim 51, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said missing or mangled data is from a previous transmission, an earlier transmission or a predicted transmission from said sending device (Hur: column 7, lines 20 – 23: the receiver requests the retransmission of the missing or damaged data, and one of the source and peer-hosts retransmits them).

Regarding claim 52, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that sending device defines unidirectional transmission block identifiers and corresponding objects before transmitting data to the receiving device (Hur: column 4, lines 35 – 47: the sources recognize data transmitted and received by using sequence number of messages. The sequence number starts with a number, is

sequentially increased for identification of each data packet and is independently maintained by each source).

Regarding claim 53, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said sending device transmits data using a unidirectional protocol (Hur: column 4, lines 43 – 65: data are transmitted from the source to receivers. The heartbeat message is used for indication of presence and status of a source).

Regarding claim 54, Hur discloses all the limitations of claim 52. Additionally, Hur discloses that said receiving device transmit an acknowledgement using a bi-directional or uplink simplex protocol using the same transmission block identifier as the unidirectional protocol (Hur: column 5, lines 11 – 23: the receiver periodically transmits the heartbeat message to the source to inform the source of the last received message. The heartbeat information sent by the receiver can be received only by the source and contain the receiver ID, a port number of connection, and the sequence number of the last message the receiver received).

Regarding claim 55, Hur discloses all the limitations of claim 40. Additionally, Hur discloses that said sending device and receiving device are in the same network of different networks (Hur: column 4, lines 17 – 21: a communication group is composed of a small number of sources, and a large number of receivers, and a connection for communication between them is established to transmit and receive data).

Regarding claim 58, Hur discloses an apparatus for reliable multicast transport of data packets, comprising: at least one processor for determining missing or mangled data in a data transmission sent by a sending device (Hur: column 4, lines 39 - 42: the receiver detects the loss of packet by checking the gap between sequence numbers and finds out the damage of packet by checking the checksum); a NACK and transmission mechanism for sending an acknowledgement or transmission of missing and mangled data to said sending device or to another receiving device (Hur: column 6, lines 54 – 57: if the receiver finds out and confirm the damage of one or more data among the message, it can request the retransmission of necessary data and NACK is used for the request); and a memory for storing the data transmission from the sending device or other receiving device (Hur: column 6, lines 60 – 65).

Regarding claim 59, Hur discloses all the limitations of claim 58. Additionally, Hur discloses that said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement message (Hur: column 6, lines 54 – 57: the negative acknowledgement (NACK) is transmitted through IP_Multicast group, and other host notices the request).

Regarding claim 60, Hur discloses all the limitations of claim 58. Additionally, Hur discloses that said retransmission of missing or mangled data is a multicast or

unicast message (Hur: Figure 3 and column 10, lines 49 – 54: the host sends the correction data to the multicast group).

Regarding claim 61, Hur discloses all the limitations of claim 58. Additionally, Hur discloses that said missing or mangled data is retransmitted from said sending device or other receiving device that possesses the missing or mangled blocks (Hur: column 6, lines 60 – 61: if the source cannot retransmit, other host retransmits the data).

Regarding claim 63, Hur discloses all the limitations of claim 58. Additionally, Hur discloses that said missing or mangled data is from a previous transmission, an earlier transmission or a predicted transmission (Hur: column 7, lines 20 – 23: the receiver requests the retransmission of the missing or damaged data, and one of the source and peer-hosts retransmits them).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 9 – 10, 29 – 30, 48 – 49, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hur et al. (Patent Number: 6,141,785) in view of Vincent Roca and Benoit Mordelet ("Design of a Multicast File Transfer Tool on Top of ALC", Proceedings of the Seventh International Symposium on Computers and communications (ISCC'02).

Regarding claim 9, Hur discloses most of the limitations of claim 1. However, Hur fails to teach that said retransmission is sent on different channels and at different data rates. In the same field of endeavor, Roca and Mordelet discloses the multi-rate and multi-layer transmission capability of Asynchronous Layered Coding (ALC) especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 10, Hur discloses most of the limitations of claim 1. However, Hur fails to teach that sending the original data transmission from said receiving device using an active ALC mechanism. In the same field of endeavor, Roca and Mordelet discloses the use of Asynchronous Layered Coding (ALC) in the design of a multicast file transfer tool especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to

incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 29, Hur discloses most of the limitations of claim 21. However, Hur fails to teach that said retransmission is sent on different channels and at different data rates. In the same field of endeavor, Roca and Mordelet discloses the multi-rate and multi-layer transmission capability of Asynchronous Layered Coding (ALC) especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 30, Hur discloses most of the limitations of claim 21. However, Hur fails to teach the sending the original data transmission from said sending device using an active ALC mechanism. In the same field of endeavor, Roca and Mordelet discloses the use of Asynchronous Layered Coding (ALC) in the design of a multicast file transfer tool especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 48, Hur discloses most of the limitations of claim 40. However, Hur fails to teach that said retransmission is sent on different channels and at different data rates. In the same field of endeavor, Roca and Mordelet discloses the multi-rate and multi-layer transmission capability of Asynchronous Layered Coding (ALC) especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 49, Hur discloses most of the limitations of claim 40. However, Hur fails to teach the sending the original data transmission from said sending device using an active ALC mechanism. In the same field of endeavor, Roca and Mordelet discloses the use of Asynchronous Layered Coding (ALC) in the design of a multicast file transfer tool especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 62, Hur discloses most of the limitations of claim 58. However, Hur fails to teach the sending the original data transmission from said server using an active ALC mechanism. In the same field of endeavor, Roca and Mordelet discloses the use of Asynchronous Layered Coding (ALC) in the design of a multicast file transfer

tool especially page 3, section 4.2 and page 4, Section 5.2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate ALC in the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

9. Claims 18 – 19, 38 – 39, 56 – 57, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hur et al. (Patent Number: 6,141,785) in view of Cain et al. (US 2005/0053094 A1).

Regarding claim 18, Hur discloses all the limitations of claim 1. However, Hur fails to disclose that said receiving device is a personal communication device, GPRS, WLAN, DVB or other similar wireless device. In the same field of endeavor, Cain discloses a mobile network containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile network of Cain and the method as discussed in Hur. The motivation is to improve the efficient of multicast communication.

Regarding claim 19, Hur discloses all the limitations of claim 1. However, Hur fails to disclose that said sending device is a server, IP-based device, GPRS, DVB other similar wireless device. In the same field of endeavor, Cain discloses a mobile network

containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile network of Cain and the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 38, Hur discloses all the limitations of claim 21. However, Hur fails to disclose that said receiving device is a personal communication device, GPRS, WLAN, DVB or other similar wireless device. In the same field of endeavor, Cain discloses a mobile network containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile network of Cain and the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 39, Hur discloses all the limitations of claim 21. However, Hur fails to disclose that said sending device is a server, IP-based device, GPRS, DVB other similar wireless device. In the same field of endeavor, Cain discloses a mobile network containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile

network of Cain and the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 56, Hur discloses all the limitations of claim 40. However, Hur fails to disclose that said receiving device is a personal communication device, GPRS, WLAN, DVB or other similar wireless device. In the same field of endeavor, Cain discloses a mobile network containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile network of Cain and the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 57, Hur discloses all the limitations of claim 40. However, Hur fails to disclose that said sending device is a server, IP-based device, GPRS, DVB other similar wireless device. In the same field of endeavor, Cain discloses a mobile network containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile network of Cain and the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Regarding claim 64, Hur discloses all the limitations of claim 58. However, Hur fails to disclose that said receiving device is a personal communication device, GPRS, WLAN, DVB or other similar wireless device. In the same field of endeavor, Cain discloses a mobile network containing wireless communication devices such a wireless modems and wireless local area network devices (Cain: page 3, section 0030). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mobile network of Cain and the method as discussed in Hur. The motivation is to improve the efficiency and reliability of multicast communication.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juvena W. Loo whose telephone number is (571) 270-1974. The examiner can normally be reached on Mon.-Thurs : 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Coby can be reached on (571) 272-4017. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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